

# 同時流星観測報告(2004.08.11/12, 12/13)

## Double-station TV meteor observations

Meteor Science Seminar Working Group (MSS-WG)

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### 1. はじめに

1996~7年8月に同時TV観測を4日間行って以来、ペルセウス群から遠ざかっていたが、TVと眼視の等級比較を行うため、広角レンズを使用して、久しぶりに観測を行った。表1にペルセウス群の輻射点と軌道要素の観測結果を示す。1996~7年は主に85mm対物レンズを使用しているが、2004年は24mm対物レンズであり、焦点距離が3.5倍違うため、測定精度も比例して落ちている。2004年の結果を見ると輻射点位置は他の年の結果と変わらない。しかし速度が約1km/s遅い。これは誤差によるものと思われる。

Table 1. Radiants and Orbits of Perseid TV meteors.

Object lens 85mmF1.4 (9.5dx7.5d) : 960811, 970812, 960812  
 50mmF1.2 (17dx13d) : 970811  
 24mmF1.4 (36dx29d) : 040811, 040812

DATE(UT) Y M D	S.Long deg	Co.Rad A.deg	SD deg	2000 D.deg	SD deg	VG km/s	SD km/s	a AU	e	q AU	Peri deg	NODE deg	i deg	Hb km	He km	Abs mag	NO met
19970811.752	139.133	47.67	.87	57.05	.36	59.4	2.6	12.3	0.923	0.941	148.2	139.1	114.1	111.5	99.5	3.4	4
SD(+/-)	.012	.011	.40	.78	-	2.1	-	-	.178	.006	3.2	.0	1.2	3.9	.9	1.5	
20040811.684	139.262	47.61	2.1	57.10	.59	58.4	2.8	7.35	0.872	0.941	147.9	139.3	113.7	113.6	98.9	2.2	23
SD(+/-)	.076	.073	1.31	.86	-	1.4	-	-	.093	.015	4.0	.1	1.2	8.3	3.4	1.5	
19960811.739	139.365	47.21	.44	57.81	.12	59.0	1.3	18.2	0.948	0.950	150.5	139.4	113.5	116.0	97.6	2.6	10
SD(+/-)	.053	.050	.87	.61	-	1.1	-	-	.076	.008	2.6	.0	1.0	6.6	2.6	1.8	
19970812.660	140.005	47.19	.67	58.08	.27	58.9	1.3	12.1	0.921	0.952	150.9	140.0	112.6	117.8	99.2	2.1	23
SD(+/-)	.064	.062	1.30	.60	-	1.2	-	-	.092	.009	2.9	.1	1.4	6.9	2.5	2.0	
20040812.678	140.217	48.42	1.6	57.70	.49	58.8	2.2	10.0	0.905	0.947	149.6	140.2	113.5	114.6	97.5	2.1	43
SD(+/-)	.070	.067	1.30	.84	-	.9	-	-	.072	.009	2.5	.1	1.2	4.7	3.4	1.5	
19960812.691	140.278	47.97	.62	57.85	.18	58.9	1.4	13.6	0.930	0.952	151.0	140.3	113.4	113.8	98.0	2.8	19
SD(+/-)	.059	.057	1.12	.63	-	1.0	-	-	.063	.008	2.1	.1	1.0	5.4	4.3	1.7	

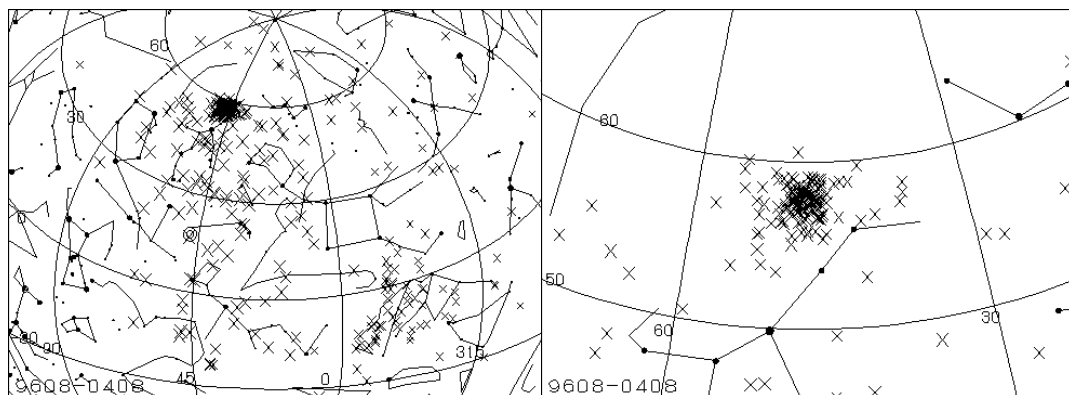


Figure 1 6 days observations, 353 Corrected Radiants.

### 2. TV等級と眼視等級の比較

表2にTV等級(Mtv)と眼視等級(SIGE:重野, TODA:戸田, (Mv:平均))の比較を示す。どの流星もTV等級の方が0.2等~2.6等明るい(平均1.2等明るい)。IIが赤外線にも感度を持つため、赤外線の多い流星が明るく写るためであろう。TV等級と眼視等級のズレ量(Mtv-Mv)が他の要因で変化するか調べた。図2に眼視等級(Mv),角速度(Va),観測速度(V0)との関係を示すが、特に傾向は見られない。

Table 2. Comparison between TV magnitude and Visual magnitude.

Obs. year: 2004 Va: Angular velocity(deg/sec) Mtv: TV magnitude  
 SIGE: Visual magnitude by SHIGENO TODA: Visual magnitude by TODA

ID	DATE	Co.Rad(2000)	VO	Va	Mtv	SIGE	TODA	Mtv-Mv	ID	DATE	Co.Rad(2000)	VO	Va	Mtv	SIGE	TODA	Mtv-Mv		
WO	0420	194.5	29.4	15.7	5.8	2.5	4.0	-	-1.5	ZG	0812	48.6	58.6	58.8	14.0	2.1	2.0	2.5	-0.2
Xe	0811	337.3	75.5	35.4	16.2	2.0	2.5	-	-0.5	ZH	0812	343.0	59.1	41.2	15.9	2.9	3.5	3.5	-0.6
Xi	0811	334.6	-3.4	25.8	11.0	3.1	4.0	3.0	-0.4	ZI	0812	345.1	-7	41.8	20.5	2.7	4.0	3.0	-0.8
Xj	0811	350.0	-15.6	39.0	19.7	2.8	5.0	5.0	-2.2	ZN	0812	50.5	56.4	60.3	13.1	-1.6	1.0	1.0	-2.6
Yd	0812	47.3	59.0	60.8	16.8	2.9	4.0	-	-1.1	ZO	0812	52.4	57.4	62.3	22.5	1.8	2.0	-	-0.2
Yf	0812	50.0	58.6	59.9	19.8	1.9	4.0	-	-2.1	ZP	0812	54.9	59.4	57.6	21.1	2.7	-	3.0	-0.3
Ym	0812	48.7	57.5	59.9	23.5	0.9	2.0	2.0	-1.1	ZQ	0812	48.8	60.6	59.5	19.9	1.0	2.0	3.0	-1.5
Yp	0812	335.0	-3.4	32.1	13.4	3.0	4.0	-	-1.0	ZS	0812	46.7	58.0	61.2	19.2	1.0	2.0	-	-1.0
Yr	0812	48.0	57.9	59.6	19.8	1.9	4.0	-	-2.1	ZY	0812	335.8	54.3	41.4	15.3	2.9	4.0	-	-1.1
Z6	0812	50.8	57.3	61.4	23.4	-1.9	0.5	-	-2.4	Zb	0812	49.5	57.0	61.0	14.0	1.2	2.0	-	-0.8
ZD	0812	47.1	57.2	60.2	14.4	-1.6	1.0	-	-2.6										

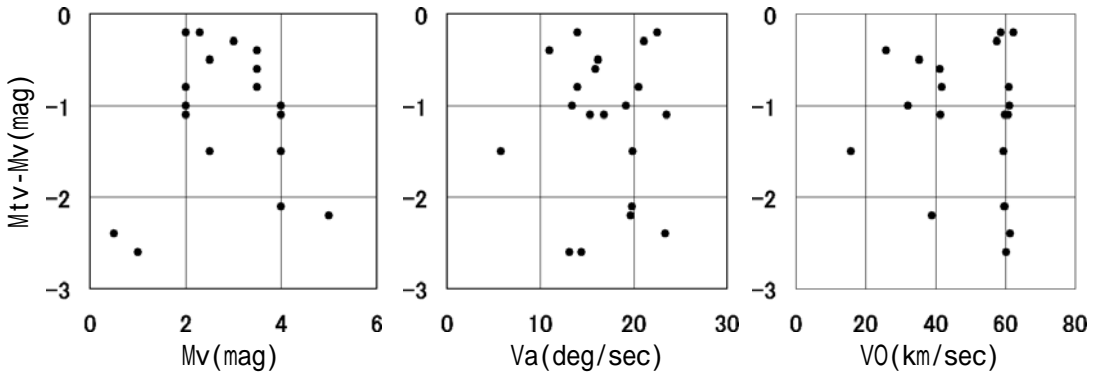


Figure 2 Comparison between deviation(Mtv-Mv) and Mv, Va, VO.

Table 3. 2004.08.11/12, 12/13 obs. 156 meteors

Co.Rad(2000)	VG	Co.Rad(2000)	VG	Co.Rad(2000)	VG	Co.Rad(2000)	VG	Co.Rad(2000)	VG	Co.Rad(2000)	VG						
216.5	48.6	4.8	345.1	-7	40.5	29.0	-9	60.4	46.4	56.8	59.6	48.6	56.4	58.6	50.0	58.6	58.7
243.9	3.9	7.5	346.0	2.5	35.3	30.3	23.3	57.8	46.7	57.7	56.2	48.6	57.0	58.8	50.1	57.5	58.8
263.1	9.5	9.8	346.1	-3.6	38.4	30.3	43.6	50.2	46.7	58.0	60.1	48.6	57.6	58.0	50.2	56.5	57.4
274.1	43.1	16.2	346.1	1.6	38.5	35.0	26.3	57.8	46.8	55.9	57.4	48.6	58.1	57.3	50.5	56.4	59.2
276.2	14.3	12.3	346.2	-7.2	34.9	36.8	58.4	53.1	47.0	59.1	59.8	48.6	58.1	58.2	50.7	56.9	59.6
278.0	59.1	23.3	348.8	-11.3	36.8	36.9	57.8	56.2	47.1	57.2	59.0	48.6	58.6	57.6	50.8	53.4	59.7
282.3	-3.3	6.8	349.4	-11.9	39.0	41.6	53.0	58.2	47.2	57.9	58.8	48.7	57.0	57.3	50.8	57.3	60.2
290.4	32.1	20.9	349.7	-14.2	38.6	41.8	14.1	67.8	47.3	57.6	59.8	48.7	57.5	58.7	51.0	58.9	55.0
300.2	3.9	17.2	350.0	-15.6	37.4	41.8	46.1	65.3	47.3	59.0	59.6	48.8	57.2	58.0	51.2	59.3	50.1
300.5	-20.0	5.4	350.9	53.7	44.4	41.8	56.4	58.8	47.4	57.0	62.1	48.8	57.4	58.0	52.2	30.7	65.3
309.0	-4.4	18.7	351.9	-17.2	36.1	41.8	59.7	59.8	47.4	57.5	59.0	48.8	60.6	58.4	52.4	53.8	56.3
310.6	-10.8	12.9	355.2	-24.4	40.4	43.9	58.8	59.3	47.5	57.9	59.5	49.0	57.8	58.6	52.4	57.4	61.2
310.6	-11.2	20.7	355.8	7.2	46.5	44.9	4.1	69.6	47.6	55.7	61.6	49.0	58.5	56.3	52.7	55.7	58.5
324.7	-7.8	26.0	356.0	-17.4	42.5	45.1	45.9	57.5	47.6	58.6	59.5	49.1	57.6	59.4	52.8	54.7	61.2
325.3	-15.3	25.1	2.8	70.4	40.0	45.6	-12.4	61.6	47.7	56.8	59.1	49.1	58.5	59.1	52.8	58.4	58.0
327.6	61.1	39.3	6.6	49.4	49.0	45.6	55.7	58.5	47.8	56.6	57.3	49.2	56.9	58.3	52.9	55.6	54.4
331.3	11.9	34.3	7.7	17.2	51.1	45.9	57.8	58.2	47.8	58.3	59.6	49.2	58.1	58.9	52.9	56.8	46.9
334.6	-3.4	23.4	8.6	31.3	60.3	46.0	4.5	67.4	48.0	57.9	58.4	49.2	59.0	58.4	54.9	59.4	56.4
335.0	-3.4	30.1	9.6	21.1	53.6	46.0	55.4	57.1	48.1	56.5	58.5	49.3	55.6	59.5	55.4	53.6	57.0
335.8	54.3	40.0	12.6	61.8	45.5	46.0	56.8	58.9	48.1	57.3	58.1	49.5	57.0	59.9	57.7	57.2	51.0
337.3	75.5	33.6	16.6	51.6	57.5	46.0	58.8	59.6	48.1	58.2	57.9	49.5	57.7	59.1	59.4	50.6	59.1
338.6	47.9	33.8	16.9	7.5	59.1	46.1	57.5	58.0	48.2	-12.5	62.5	49.6	33.1	64.7	65.1	52.0	61.8
341.3	9.4	26.0	18.7	10.7	65.7	46.1	58.6	59.5	48.2	55.8	56.7	49.7	58.0	58.4	75.1	50.2	50.8
343.0	59.1	39.8	20.9	34.3	40.3	46.2	56.6	58.2	48.3	57.8	58.0	49.8	58.7	57.4	77.9	38.4	59.3
343.2	-12.8	31.0	21.2	45.1	54.4	46.3	57.9	57.9	48.3	57.9	58.6	49.9	57.3	56.4	78.6	41.7	53.3
343.2	13.3	44.0	24.8	43.5	49.5	46.4	56.7	60.2	48.4	57.6	58.4	50.0	57.2	60.4	90.5	46.8	54.7